

## Claims

Sub A27

1. A spark plug for an internal combustion engine, having a middle electrode which has an electrode base body (5) with an end face (51) oriented toward the combustion chamber, to which end face a precious metal platelet (8) is attached, in which an end section (15) of the electrode base body oriented toward the combustion chamber is embodied in the shape of a truncated cone, characterized in that the precious metal platelet (8) is embodied in the shape of a truncated cone and the diameter of the end face (51) of the electrode base body oriented toward the combustion chamber corresponds to the diameter of the end face (84) of the precious metal platelet oriented away from the combustion chamber.

2. The spark plug according to claim 1, characterized in that the opening angle (21) of the truncated cone-shaped end section of the electrode base body oriented toward the combustion chamber is less than or equal to  $180^\circ$  and/or the opening angle (23) of the truncated cone-shaped precious metal platelet is less than or equal to  $90^\circ$  and the opening angle of each opens in the direction oriented away from the combustion chamber.

3. The spark plug according to claim 1, characterized in that the end section (15) of the electrode base body oriented toward the combustion chamber has a first truncated cone-shaped region (151) and a second truncated cone-shaped region (152), where the diameter of the end face (156) of the first truncated cone-shaped region oriented away from the combustion chamber corresponds to the diameter of the end face (157) of the second truncated cone-shaped region oriented toward the combustion chamber.

4. The spark plug according to claim 3, characterized in that the opening angle (27) of the first truncated cone-shaped region and of the precious metal platelet adjoining it in the direction of the combustion chamber is less than or equal to  $90^\circ$  and/or the opening angle (25) of the second truncated cone-shaped region is less than  $180^\circ$  and the opening angle of each opens in the direction oriented away from the combustion chamber.

5. The spark plug according to claim 3, characterized in that the opening angle (28) of the first truncated cone-shaped region and the precious metal platelet adjoining it in the direction toward the combustion chamber is less than or equal to  $25^\circ$  and the opening angle opens in the direction oriented toward the combustion chamber.

6. The spark plug according to claim 3, characterized in that the height of the first truncated cone-shaped region (151), together with the height of the precious metal platelet (8), is less than or equal to 1.5 mm.

7. The spark plug according to claim 3, characterized in that the diameter of the end face (82) of the precious metal platelet oriented toward the combustion chamber is less than or equal to 1.5 mm.

8. A method for producing middle electrodes for a spark plug of an internal combustion engine, in which an electrode base body (5) has a precious metal platelet (8) attached to it, the end face (51) of the electrode base body oriented toward the combustion chamber being attached to the end face (84) of the precious metal platelet oriented away from the combustion chamber so that a transition region between the precious metal platelet (8) and the electrode base body (5) is produced, characterized in that the precious metal platelet (8) and the combustion chamber end (15) of the electrode base body are machined in a material-removing manner in such a way that an outer section (11) in the transition region between the precious metal platelet (8) and the electrode base body (5) is removed, which section (11) differs in its micro-structure and/or composition from that of an inner section (12) of the transition region.

9. The method according to claim 8, characterized in that the precious metal platelet (8) is attached to the electrode base body (5) by means of resistance welding or laser welding.

10. The method according to claim 8, characterized in that before the attachment of the precious metal platelet (8), the end face (51) of the electrode base body oriented toward the combustion chamber is machined in a material-removing manner in such a way that the end face oriented toward the combustion chamber is flat.

5

11. The method according to claim 8, characterized in that the precious metal platelet (8) and the end section (15) of the electrode base body oriented toward the combustion chamber are machined in a material-removing manner in such a way that a first truncated cone-shaped region (151) and a second truncated cone-shaped region (152) are produced, such that the diameter of the end face (156) of the first truncated cone-shaped region oriented away from the combustion chamber corresponds to the diameter of the end face (157) of the second truncated cone-shaped region oriented toward the combustion chamber.

10

202050-0986T001

Add A37